

Epistaxis in hospitalized patients with COVID-19

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Abstract

Spontaneous epistaxis in patients with COVID-19 can represent a clinical challenge with respect to both the risk of contamination and the treatment options. We herein present the data of 30 patients with COVID-19 who developed spontaneous epistaxis while hospitalized at Eastern Piedmont Hospital during March and April 2020. All patients received low-molecular-weight heparin during their hospital stay and required supplementary oxygen therapy either by a nasal cannula or continuous positive airway pressure. Both conditions can represent risk factors for developing epistaxis. Prevention of crust formation in patients with rhinitis using a nasal lubricant should be recommended. If any treatment is required, appropriate self-protection is mandatory.

Keywords

Epistaxis, pandemics, COVID-19, hemorrhage, heparin, oxygen therapy

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Introduction

SARS-CoV-2 respiratory involvement includes both lower and upper respiratory tract symptoms such as cough, dyspnea, sore throat, smell and taste dysfunction, or nasal congestion.^{1,2} Epistaxis (nosebleed) is a common condition overall but is relatively rare in adults and older patients. The etiology is multifactorial in most cases and may include local factors (e.g., trauma, digital manipulation, chronic nasal cannula use, or vascular malformation) combined with medications (e.g., anticoagulants) or

systemic disease (e.g., hypertension). Other conditions, such as allergic or non-allergic rhinitis, may also damage the nasal mucosa and contribute to the mucosal frailty and pathogenesis of epistaxis.³

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The clinical examination of patients with COVID-19 frequently involves nasal open suction, which may increase the risk of SARS-CoV-2 transmission by generation of infectious aerosols. Healthcare providers who manage patients with epistaxis are thus at risk of infection.^{4,5} Bleeding management may require application of a nasal plug. Although this may stop the nasal flow, it might not be well tolerated by patients undergoing ventilation with a naso-buccal mask. Prevention of epistaxis remains the best option.

We herein describe a case series of inpatients with laboratory confirmed COVID-19 who developed spontaneous epistaxis and required assessment by an ear, nose, and throat (ENT) specialist.

Case series

In total, 104 patients with laboratory-confirmed SARS-CoV-2 infection were admitted to our hospital's high-dependency unit from 1 March to 31 April 2020. The main cause of admission to the high-dependency unit was respiratory failure associated with COVID-19-associated bilateral interstitial pneumonia. Among these patients, we identified 30 patients who developed spontaneous epistaxis. Patients with hereditary hemorrhagic telangiectasia or nasal masses were excluded. The patients' median age was 71.5 years, 23 (77%) were men, and 70% had experienced previous episodes of epistaxis. Seventeen patients were taking anticoagulants or antiplatelets for pre-existing disorders unrelated to COVID-19. All patients were receiving low-molecular-weight heparin (LMWH) during their hospital stay (Table 1).

All patients underwent anterior rhinoscopy, which showed unilateral bleeding in 25 (83%) patients. The bleeding site was not detected in three patients. The bleeding site was in the anterior region, specifically in the

Table 1. Characteristics of 30 patients with COVID-19 with spontaneous epistaxis.

Characteristics	All patients (n = 30)
Age, years	71.5 (62.0–76.5)
Male sex	23 (77)
Risk factors	
Hypertension	29 (97)
Use of LMWH	30 (100)
Use of anticoagulants or antiplatelet medication	17 (57)
Aspirin	10
Clopidogrel	3
Rivaroxaban	4
Previous epistaxis in the last 2 months	21 (70)
Oxygen therapy	30 (100)
Nasal cannula	11 (37)
Helmet CPAP	19 (63)

Data are presented as median (interquartile range) or n (%).

LMWH, low-molecular weight heparin; CPAP, continuous positive airway pressure.

anatomical area of Kiesselbach's plexus in the nasal septum, in 27 patients. In most patients, direct nasal compression and application of topical vasoconstrictor agents resolved the nosebleed. However, 10 (33%) patients required further otorhinolaryngologic assessment. Seven of these 10 patients underwent cautery (either chemical with trichloroacetic acid or electric with bipolar forceps) in association with nasal packing. Five patients required nasal packing with Merocel (Medtronic Inc., Minneapolis, MN, USA) (bilateral in four patients) and five required resorbable sponges (Spongostan; Johnson & Johnson Medical Devices, New Brunswick, NJ, USA). The packing was removed after 48 hours, and local ointments were prescribed to ameliorate mucosal tropism in all patients.

This research was conducted in accordance with the ethical principles originating in the Declaration of Helsinki, and written

informed consent was obtained from all patients.

Discussion

Epistaxis is a common reason for ENT referral. Especially during the COVID-19 pandemic, its treatment (aerosol-generating procedure) could represent a risk for health-care providers who must correctly use personal protective equipment and strictly behave in accordance with guidelines.⁴

In our case series, all patients presented with non-allergic atrophic (crusty) rhinitis. The high prevalence of oxygen therapy in the treatment of COVID-19 pneumonia might have been the predominant cause of the high incidence of nosebleeds in this population. All of our patients were receiving non-humidified oxygen either via a low-flow nasal cannula or continuous positive expiratory pressure via a helmet. Such treatments are known risk factors for nasal dryness,^{6–8} and prolonged oxygenation will increase the risk of crust formation, which will then weaken the nasal mucosa and expose the patient to an increased risk of nasal bleeding. A second risk factor in this specific population is the use of anticoagulant drugs. All of our patients were receiving LMWH for either thromboprophylaxis or therapy according to their individual risk factors and local policy. This must be taken into account because LMWH is commonly used for both inpatients with low mobility and patients with COVID-19.⁹ We postulate that patients presenting with both of these risk factors are at increased risk for epistaxis. Because of the limited sample size, more observational studies are required to prove this hypothesis. Nevertheless, in patients considered at risk and to prevent atrophic rhinitis and subsequent epistaxis, moisturizing or lubricant agents should be regularly prescribed and the use of humidified oxygen should be considered preferable.

Declaration of conflicting interest

The authors declare that there is no conflict of interest.

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